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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/466,982	12/17/1999	WHYNN VICTOR LOVETTE	104421	1810

7590 12/19/2003

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EXAMINER	
VU, NGOC YEN T	

ART UNIT	PAPER NUMBER
2612	8

DATE MAILED: 12/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/466,982	LOVETTE ET AL.	
	Examiner	Art Unit	
	Ngoc-Yen T. Vu	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/17/1999*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☒ Claim(s) *14-20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06/18/2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-4, 6, 9-10 and 21-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Frey (US #5,925,875).

Regarding claim **1**, Frey '875 teaches a method of calibrating video comprising calibrating at least one of pixel offset (Figs. 2, 7 and 10, active update offset system 40) and pixel gain (Fig. 2, signal processor 20, gain table 24, multiplier 26) of a video signal via digital hardware.

As to claim **2**, Frey '875 teaches the method further includes calibrating for pixel offset by setting a range for pixel offset calibration, adjusting an uncalibrated video signal to be within the range, and providing an offset level setpoint (Figs. 2, 7 and 10, offset update 53/5571/72/73).

As to claim **3**, Frey '875 teaches the method further includes calibrating for pixel offset by subtracting a current state of offset of a video signal from the offset level setpoint to provide an error value (Figs. 2, 7 and 10, adder 42).

As to claim **4**, Frey '875 teaches the method further includes calibrating for pixel offset by applying a variable gain factor to the error value to provide a variable gain/error value (Figs. 2, 7 and 10, adder 56, memory 58 and adder 52).

As to claim **6**, Frey '875 teaches the method further includes calibrating for pixel offset by adding the variable gain/error value to a pixel offset value stored in a storage device to provide a specified pixel offset value (Figs. 2, 7 and 10, adder 56, memory 58 and adder 52).

As to claim **9**, Frey teaches the method further includes calibrating for pixel gain by setting a range for pixel gain calibration (gain tables 24), adjusting an uncalibrated video signal to be within the range, and providing for continuing compensation of changes in video intensity (multiplier 26)

As to claim **10**, Frey teaches the method further includes calibrating for pixel gain by covering a video channel with an automatic gain control tab (gain tables 24).

Regarding claim **21**, Frey '875 teaches an image sensor (Fig. 1, focal plane array 14) for use with a document scanner (Fig. 1, mechanism 18) comprising digital hardware (Fig. 1, signal processor 20) that calibrates at least one of pixel offset and pixel gain of a video signal.

As to claim **22**, Frey '875 teaches that the image sensor further includes a device that calibrates for pixel offset by setting a range for pixel offset calibration, adjusting an uncalibrated video signal to be within the range, and providing an offset level setpoint (Figs. 2, 7 and 10, offset update 53/5571/72/73).

As to claim **23**, Frey '875 teaches that the image sensor further includes a device that calibrates for pixel gain by setting a range for pixel gain calibration (Fig. 1, gain tables 24), adjusting an uncalibrated video signal to be within the range, and providing for continuing compensation of changes in video intensity (Fig. 1, multiplier 26).

4. Claims 1-12 and 21-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Johnson et al. (US #6,252,536 B1).

Regarding claim **1**, Johnson '536 teaches a method of calibrating video comprising calibrating at least one of pixel offset and pixel gain of a video signal via digital hardware (Figs. 1 and 8A, dynamic range extension signal processing DRX 2/20).

As to claim **2**, Johnson '536 teaches the method further includes calibrating for pixel offset by setting a range for pixel offset calibration, adjusting an uncalibrated video signal to be within the range, and providing an offset level setpoint (Figs. 1 and 8A, 2-bit ADC 11, logic circuitry 8, offset 1-3, and Mux. 9).

As to claim **3**, Johnson teaches the method further includes calibrating for pixel offset by subtracting a current state of offset of a video signal from the offset level setpoint to provide an error value (Figs. 1, 4, 8A, 8B, 9A; offsets A-C and output of the 2-bit ADC 11).

As to claim **4**, Johnson teaches the method further includes calibrating for pixel offset by applying a variable gain factor to the error value to provide a variable gain/error value (Figs. 1, 5, 8A, Mux. 11 and Logic circuitry 8).

As to claim **5**, Johnson shows in figure 2 that the variable gain factor is fixed for different trip points.

As to claim **6**, Johnson teaches the method further includes calibrating for pixel offset by adding the variable gain/error value to a pixel offset value stored in a storage device to provide a specified pixel offset value (Fig. 1, output from Logic circuitry 8 and offset registers 21-23).

As to claim 7, Johnson teaches the method further includes calibrating for pixel offset by dividing the specified pixel offset value by 16 (col. 11 line 19-60).

As to claim **8**, Johnson teaches the method further includes calibrating for pixel offset by adding the divided value to the video signal adjusted to be within the range (Fig. 1, summer 10).

As to claim **9**, Johnson teaches the method further includes calibrating for pixel gain by setting a range for pixel gain calibration (Figs. 1, 3, 7 and 8E, VGA 5), adjusting an uncalibrated video signal to be within the range, and providing for continuing compensation of changes in video intensity.

As to claim **10**, Johnson teaches the method further includes calibrating for pixel gain by covering a video channel with an automatic gain control tab (col. 7 line 50 – col. 8 line 33).

As to claim **11**, Johnson teaches the method further includes calibrating for pixel gain by subtracting a current state of gain of a video signal from an automatic gain control tab setpoint to provide an error value (Fig. 7, col. 7 line 50 – col. 8 line 33).

As to claim **12**, Johnson teaches the method further includes calibrating for pixel gain by inputting the error value into an integrator to apply the error value to a video signal over a period of time (Fig. 8E, average high/low gain circuits 401/402).

Regarding claim **21**, Johnson teaches an image sensor (Figs. 1 and 8A, imaging device 3) for use with a document scanner (col. 1 lines 37-47) comprising digital hardware (Figs. 1 and

8A, dynamic range extension signal processing 2/20) that calibrates at least one of pixel offset and pixel gain of a video signal.

As to claim **22**, Johnson teaches that the image sensor further includes a device that calibrates for pixel offset by setting a range for pixel offset calibration, adjusting an uncalibrated video signal to be within the range, and providing an offset level setpoint (Figs. 1 and 8A, 2-bit ADC 11, logic circuitry 8, offset 1-3, and Mux. 9).

As to claim **23**, Johnson teaches that the image sensor further includes a device that calibrates for pixel gain by setting a range for pixel gain calibration, adjusting an uncalibrated video signal to be within the range, and providing for continuing compensation of changes in video intensity (Figs. 1, 3, 7 and 8E, VGA 5; col. 7 line 50 – col. 8 line 33).

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson '536 in view of O'Neil (US #5,514,865).

As to claim **13**, the claim differs from Johnson in that it further requires multiplying a video signal output from the integrator with a video signal inputted to the video channel covered with the automatic gain control tab. However, in order to compensate for scene dynamics and limiting the effect of scene changes on the detector noise correction process it is well known in the art to multiply an accumulated gain error to a video signal as taught in O'Neil '865 (See Figs. 10-12, multiplier 412/508). In light of the teaching from O'Neil, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the dynamic range extension signal processing taught in Johnson by providing a multiplier as claimed in claim 13 so as to compensate for scene dynamics and limiting the effect of scene changes on the image sensor noise correction process.

Allowable Subject Matter

6. Claims 14-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc-Yen T. Vu whose telephone number is 703-305-4946. The examiner can normally be reached on Mon. – Fri. from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R. Garber can be reached on 703-305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

NGOC-YEN VU
PRIMARY EXAMINER
Art Unit 2612

NYV
12/15/2003